### Interleukin 12 (IL-12) (MEDI1191)

#### Last program update: August 5, 2020

<table>
<thead>
<tr>
<th>Modality</th>
<th>ID #</th>
<th>Program Indication</th>
<th>Preclinical development</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3 and commercial</th>
<th>Moderna rights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intratumoral immuno-oncology</strong></td>
<td>mRNA-2416</td>
<td>OX40L Solid tumors/lymphoma Advanced ovarian cancer</td>
<td>Solid tumors/lymphoma</td>
<td></td>
<td></td>
<td>Ovarian</td>
<td>Worldwide</td>
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<tr>
<td></td>
<td>mRNA-2752</td>
<td>OX40L/IL-23/IL-36γ (triplet) Solid tumors/lymphoma</td>
<td>Solid tumors/lymphoma</td>
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<td>Worldwide</td>
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<tr>
<td></td>
<td>MEDI1191</td>
<td>IL-12 Solid tumors</td>
<td>Solid tumors/lymphoma</td>
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<td>50-50 U.S. profit sharing; AZ to pay royalties on ex-U.S. sales</td>
</tr>
</tbody>
</table>

- **Phase 1 study of MEDI1191 ongoing; study run by AstraZeneca**
mRNA-encoding IL-12 (MEDI1191)
mRNA-encoded cytokine to activate tumor microenvironment
IL-12 (MEDI1191) overview

Powerful immunomodulatory cytokine well-suited for local delivery

• IL-12: potent immune modulator typically associated with a type 1 immune response and production of interferon-gamma

• Clinical development of systemically administered recombinant IL-12 has been hampered by systemic toxicity

• We have demonstrated well-tolerated intratumoral doses of IL-12 mRNA induce complete responses in multiple mouse models of cancer, exert abscopal effects on distal tumors, and yield protective immunity

• Clear rationale for the combination of IL-12 and PD-1/PD-L1 blockade

Species: Mouse

Moderna concept: Intratumorally-administered mRNA encoding IL-12 to activate tumor microenvironment
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